1. (Previously Presented) A process for manufacturing transglycosylation products,

comprising the steps of:

- reacting a starch ester or starch ether at acidic conditions with an alkanol containing 1 to

6 hydroxyl groups in the presence of an acidic catalyst in a transglycosylation reaction to form a

reaction mixture, wherein said acid catalyst comprises phosphorous, and

- recovering a transglycosylation product, or subjecting the transglycosylation product to

further processing,

characterized in that

- the reaction is performed in a reactive extrusion process essentially without any

medium, and

- the reaction mixture is conducted through an extrusion device via at least two separately

adjustable heating zones, thereby providing control of heat introduced externally into the

reaction mixture.

wherein the acidic catalyst is a phosphorus-containing acid selected from at least one of

the group consisting of: phosphoric acid, H₃PO₄, hypophosphorous acid, H₃PO₂, and

phosphorous acid, H₃PO₃, and

wherein the catalyst is allowed to chemically bond with the transglycosylation product.

2

2-4. (Cancelled)

GMM/LTP/bpr

Docket No.: 0365-0627PUS1

Application No. 10/532,398 After Final Office Action of October 29, 2008

5. (Previously Presented) The process according to claim 1, wherein the extrusion

Docket No.: 0365-0627PUS1

temperature is within the range of approximately 105 to 200 °C.

6. (Previously Presented) The process according to claim 1, wherein prior to the

transglycosylation reaction, the alkanol and the acidic catalyst are mixed together to form a first

reaction mixture, thereby producing an aerosol, wherein the aerosol is added to the starch

derivative at a dose corresponding to a desired molar mass of the transglycolsytion product to

produce a pre-mixture.

7. (Previously Presented) The process according to claim 6, wherein the amount of the

alkanol is approximately 0.01 to 20 weight-\%, of the mass of the starch ester or the starch ether.

and wherein the amount of the alkanol is approximately 0.0005 to approximately 5 mole-% of

the amount of the starch ester or the starch ether.

8. (Previously Presented) The process according to claim 6 or 7, wherein the alkanol and

the acidic catalyst are supplied in aerosol form to a fluidised-bed mixing device, wherein the

alkanol and acidic catalyst are mixed with a powdery starch derivative to produce the pre-

mixture.

9. (Currently Amended) The process according to claim 6, wherein the concentrations of

the alkanol and the acidic catalyst and of any liquid chemicals are selected such that the total

3

amount of liquid is less than 30 % wt-% of the dry matter content of the pre-mixture.

GMM/LTP/bpr

Application No. 10/532,398 Docket No.: 0365-0627PUS1
After Final Office Action of October 29, 2008

10. (Previously Presented) The process according to claim 5, wherein the reaction

mixture is compacted yielding a compacted pre-mixture, prior to supplying the reaction mixture

to the extrusion device.

11. (Previously Presented) The process according to claim 10, wherein the compacted

pre-mixture is supplied to the extrusion device to serve as the reaction mixture, wherein the

extrusion device is either a 1- or 2-screw type extrusion device.

12. (Previously Presented) The process according to claim 1, wherein the starch ester or

starch ether comprises a product manufactured from native starch by means of oxidizing,

hydrolyzing, cross-linking, cationizing, grafting, etherification or esterification.

13. (Cancelled)

14. (Previously Presented) The process according to claim 1, wherein the alkanol is a

lower alkanol with 1 to 6 carbon atoms and 1 to 5 hydroxyl groups.

15. (Previously Presented) The process according to claim 14, wherein the alkanol is

selected from at least one of the group consisting of: methanol, ethanol, n-propanol, isopropanol,

n-butanol, sec butanol, methoxy ethanol, ethoxy ethanol, methoxy methanol, ethoxy methanol,

ethylene glycol, propylene glycol and glycerol.

4

GMM/LTP/bpr

Application No. 10/532,398

After Final Office Action of October 29, 2008

16-21. (Cancelled)

22. (Previously Presented) The process according to claim 1, wherein the extrusion

temperature is within the range of approximately 110 to 190 °C.

23. (Previously Presented) The process according to claim 6, wherein the amount of the

alkanol is approximately 0.1 to 10 weight-% of the mass of the starch ester or the starch ether.

24. (Previously Presented) The process according to claim 6, wherein the amount of the

alkanol is approximately 0.002 to approximately 2.0 mole-% of the amount of the starch ester or

the starch ether.

25. (Previously Presented) The process according to claim 6, wherein the amount of the

alkanol is approximately 0.015 to 0.3 mole-% of the amount of the starch ester or the starch

ether.

26. (Previously Presented) The process according to claim 6, wherein the concentrations

of the alkanol and the acidic catalyst and of any liquid chemicals are selected such that the total

amount of liquid is approximately 5 to 25 % wt-% of the dry matter content in the pre-mixture.

5

GMM/LTP/bpr

Docket No.: 0365-0627PUS1

Application No. 10/532,398 Docket No.: 0365-0627PUS1
After Final Office Action of October 29, 2008

27. (Previously Presented) The process according to claim 5, wherein the reaction

mixture is compacted and granulated prior to feeding it into the extrusion device.

28. (Previously Presented) The process according to claim 1, wherein the alkanol is a

lower alkanol with 1 to 6 carbon atoms and 1 to 3 hydroxyl groups.

29. (Previously Presented) The process according to claim 14, wherein the alkanol is

selected from the group consisting of: a substituted lower alcohol, an alcohol containing two

hydroxyl groups, and an alcohol containing three hydroxyl groups.

30. (Canceled)

6